

INTRODUCTION

This report presents evaluation information gathered by entomologists from the Division of Timber Management on the major insect pests causing damage to the timber stands of the Caribou National Forest.

Material for this report was compiled from aerial survey data and follow-up ground examinations of infested areas.

The mountain pine beetle continues to cause the loss of thousands of lodgepole pine trees in many areas of the Caribou National Forest. The Douglas-fir beetle killed many trees throughout the length of the Forest. A complex of terminal feeders caused moderate to severe defoliation of lodgepole pine terminal growth in the McCoy Creek drainage and many other small scattered areas. Moderate to severe defoliation of snowberry and bitterbrush by the sheep day moth is expected to occur in many scattered areas of the Caribou National Forest next year. A more detailed discussion of these individual problems follow.

Mountain pine beetle, *Dendroctonus ponderosae* Hopk. (= *monticola* Hopk.)

The mountain pine beetle has continued to spread in area and increase its activity in lodgepole pine stands of the Caribou National Forest since 1963.

This year aerial survey crews mapped 50 separate areas of mountain pine beetle activity. Most of these areas are small new centers containing groups of three to 50 "red topped" trees. In the older infestations, seven areas had from one to 400 "faders" and eight areas contained over 400 faded trees. All infestations are in overmature and mature lodgepole pine stands mixed with aspen and true and Douglas-fir. Neither new nor old attacks have been found on trees measuring less than six inches d.b.h.

Brood density samples were taken in 11 separate infested areas. Ten of these areas exhibited brood densities exceeding 180 per square foot, which continues an epidemic condition. The only exception was in Bacon Creek on the southwest corner of Diamond Flat. This new infestation center had a brood density of 177.3 per square foot of bark area; however, egg deposition was not complete and brood densities will likely exceed 200 per square foot by next spring. The buildup ratio in this area was too new attacks for every tree killed last year.

The areas sampled, their respective brood density counts and expected trends follow:

<u>Sample Location</u>	<u>Ave. Fall Brood Density/Sq. Ft.</u>	<u>Buildup Ratio Old - New</u>	<u>Predicted Trend</u>
Crow Creek	290.4	1:1	Epidemic-Increasing
Clear Creek	220.4	1:1	Epidemic-Increasing
Diamond Flat	275.6	1:4	Epidemic-Increasing
Sulphur Peak	263.2	1:1	Epidemic-Increasing
Antelope Creek	208.5	1:1	Epidemic-Increasing
Dela Basin	256.7	1:1	Static
Bald Mountain	385.2	1:2.5	Epidemic-Increasing
Bear Creek	526.7	1:6	Epidemic-Increasing
Bridge Creek	320.7	1:2-3	Epidemic-Increasing
Red Pine	452.4	1:1	Epidemic-Increasing
Bacon Creek	177.3	1:1-2	Epidemic-Increasing

Predators and parasites were observed in all brood samples, however, their significance in reduction of bark beetle populations has not been determined. Their effect on total brood reduction will not be known until next spring.

With the exception of Dela Basin, all areas have sufficient mature and overmature lodgepole pine to sustain the infestation at epidemic levels with increasing trends through next year. In Dela Basin, brood density remains high but the infestation has about run its course. Very few live overmature and mature trees remain and the beetles are not expected to attack the smaller d.b.h. trees. This infestation is classed as static with a static or decreasing trend.

Unless suppressive action is taken, or unforeseen natural control measures take over, the infestation will continue to increase in severity and extent, killing more trees in and adjacent to the infestation areas and moving into new areas.

Douglas-fir beetle, *Dendroctonus pseudotsugae* Hopk.

Aerial survey data show 80 separate areas of Douglas-fir beetle activity on the Caribou National Forest during 1965. None of these areas are

large; most cover less than five acres and contain 10 or 15 "faders." All areas appear to be at a static level with buildup ratios of one new attack for each tree killed last year. Although no on-the-ground evaluations were made, past beetle history in these areas coupled with the nature of the infestations indicate no significant change in the number of trees killed next year over those experienced this year.

Defoliators of Lodgepole pine

Defoliation of lodgepole pine terminals by several insects, including a tubs moth, Argyrotaenia sp., the jack pine budworm, Choristoneura pinus Free., a budworm, Choristoneura sp., and the pine needle sheath miner, Zelleria hainbachi Busck was observed in most of the lodgepole pine stands on the northern half of the Caribou National Forest during 1965. Most noticeable defoliation was observed in all the side drainages from trout Creek, near Alpine, Wyoming, north along the west side of Palisades Reservoir to Calamity Creek. Observers also noted considerable defoliation of lodgepole pine from Wells Canyon in the Crow Creek drainage south to and including Preuss Creek. McCoy Creek received the heaviest defoliation with 40 percent of the growth removed. Defoliation in all other areas was considerably less. These same defoliators caused severe defoliation elsewhere throughout lodgepole pine stands in the northern half of Region Four during 1965. Defoliated trees become stunted and deformed, some permanently. However, tree mortality has yet to be observed in any of the infested areas in the Region.

True fir defoliator, possibly Zeiraphera sp.

This defoliator was observed to be causing light to moderate defoliation of subalpine fir trees in Red Pine Canyon, Dale Basin and Antelope Creek during 1965. No evidence of feeding on Douglas-fir was noticed. Defoliation was restricted to current years growth. No defoliation samples were taken and followup examinations will have to be made to determine the status and expected trend of this defoliator.

Adult sheep day moths, Pseudohazis sp. Adults of the sheep day moth were observed flying in various areas of the Caribou National Forest this year. Eggs laid this fall will hatch next spring and the larvae are expected to cause light to moderate defoliation of snowberry and bitterbrush. Next fall (1966) the larvae will pupate and spend the winter in the duff at the base of the host plants. Larvae and defoliation usually occur once every other year; however, there is some overlapping of generations. Consequently, some defoliation may be observed every year. Although defoliation can become serious in some areas, actual plant mortality caused by sheep day moth larvae feeding has not been observed in Region Four.